BOTANICAL GAZETTE.

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INFLUENCE OF THE SCION ON THE STOCK.—It is now very well known that many of our variegated varieties of green house *Abutilons* are produced by budding. A species with a variegated leaved form is grafted on another species, and from the branches which spring from the stock beneath the bud or graft, come out in some cases variegated ones—the same as the stock in all cases. There is no hybridity, only the variegation is communicated to the sprout from the stock.

Three years ago a bud of the blood-leaved variety of *Betula alba* was put into a strong stock of *B. alba*, var. *populifolia*, our American form. The following spring the bud made a growth of nearly a foot in length, when a careless laborer pushing against it, knocked the growing shoot completely out. Over the place where it grew a bud of the cut-leaved Birch was inserted, which, growing, caused the stock to be preserved. Last spring, several inches below the place where the original bud of the blood-leaved variety had been torn out, a branch of a blood-leaved color pushed forth. It attained a height of nearly two feet the past summer, and the stock still shows the scar of the original bud. That such transfusion of character can be carried downward in the stock is not new, as already noted in *Abutilon*, but I think it is new that this coloring principle can exist in the stock for ten months after all the foliage has been destroyed, and nothing but a portion of the original bark of the bud remained.

Another novel point is that whereas in other cases only the "variegating material" has been transfused downwards, the specific, or it may be varietal, character remaining intact; in this case the new bud from the *populifolia* stock is the true European *alba*, showing that in this case more character than that of mere coloring has been transmitted through the structure of the stock. I may remark that many botanists receive *B. populifolia* as but a variety of *B. alba*. As long as it is not possible to define what is a species, there may be an allowable difference of opinion, but it seems to me there are as many permanent distinctions as in many other universally acknowledged species of plants. There is one distinction which I have never seen noted. In *B. populifolia* the leaves spread flat at once in expanding,

while those of *B. alba* are bent upward until mature. I enclose samples from the stock and blood-leaved shoot to illustrate this distinction.—THOS. MEEHAN.

NOTES FROM COLORADO.—The lateral canons of the Arkansas Canon between Canon City and Spike Buck Canon, have generally no running water in them. Where they come down into the main canon is a mass of boulders, rocks and sand spreading fan-like in all directions. This "wash" at the mouths of the canons, three to five hundred feet from the river, is from ten to eighty feet deep. Upon these "washes" bushy trees of *Juniperus occidentalis* that are more than a hundred years old often grow, and *Opuntia arborescens* as much older than twenty as years it has missed forming a new joint, with old bushes of *Bigelovia* and many other species of shrubby plants. Two dead trees of *Pinus ponderosa*, one large and one medium size apparently grew upon one of these washes, but a railway cut uncovering their buried trunks showed that since they had attained their present size, a "water spout" bringing rocks and sand down from the mountains, had formed a new surface about the trees fifteen feet above the old one. Along the base of the mountains on the plains it is not uncommon to find old cottonwood stumps, rotted away, leaving a hole eight or ten feet deep down into the soil which has been washed about them, but the pines, growing in rocky localities can not often be subjected to such catastrophes.—T. S. BRANDEGEE.

REGULAR FLOWER IN PEDICULARIS CANADENSIS.—On May 2d, 1877, I collected near this place a specimen of this plant, which I have carefully preserved in the Herbarium of Purdue University, having a strictly regular flower growing from the apex of one of the spicate racemes. The position of the flower as well as the perfect regularity of the corolla, attracted my attention and I carefully preserved it and in a note pinned upon the sheet on which it was fastened is the following description which I copy:

The flower is salver form in shape, the tube spreading abruptly above, with a regular border of six lobes each a full line in length. The lobes turn back and face outward, the edges being rolled for two thirds of the length of the lobes, giving them the appearance of being acute. At each sinus between the corolla lobes and just within the border, was a gibbous protuberance whose blunt point extended a very little beyond the base of the sinus. The calyx was somewhat irregularly four-lobed, one lobe having a tooth in its margin. The calyx was also split down further on one side than on the other, and

was about one-half the length of the tube of the corolla. The stamens were four, exserted, on slender filaments, erect and about equalling the pistil. The corolla was twisted from the base to the border to the extent of about one-fourth of the circumference.—JOHN HUSSEY, *Purdue University, La Fayette, Ind.*

THE HAIRS OF LYCHNIS GITHAGO, Lam.—While applying poison (a solution of corrosive sublimate in alcohol) to some herbarium specimens a few days ago, the long soft hairs of the Corn Cockle attracted my attention, and thinking perhaps they would make an interesting study under the microscope, I laid a few aside until I should have leisure to prepare and mount them. Almost every one is familiar with the general appearance of our common *Lychnis*, but perhaps few have noticed particularly the delicate white hairs with which it is clothed. Let me describe them, though what I wish to notice especially, concerns not so much the form of the hair as its movements. The whole plant is covered with these silky, appressed hairs, varying from 2 to 4 lines in length. At the base under the microscope is seen a group of small cells from which the hair tapers to a fine point. It is composed of from three to five cells, which become more attenuated in proportion as they lie nearer the outer extremity, the longest being about 8-hundredths of an inch. The whole hair seems to be somewhat flattened, occasioned probably by drying. When preparing these hairs for mounting, I first placed them in a watch-glass containing strong alcohol. In a few seconds the three commenced swimming about, revolving, rising and falling, continuing the motion as long as they remained in the alcohol. Upon being placed in turpentine the movements ceased.

The question naturally arises, what caused these movements? As was remarked, the hairs of *Lychnis* are somewhat flattened, and when dry are slightly twisted spirally. Upon examining them in the glass of alcohol with a small hand magnifier they were seen to be very much twisted but no motion except the general one could be made out. Taking them from the glass and placing them upon a slide in a drop of alcohol, under a power of 60 diameters, the reason of the swimming could readily be detected. The hairs were twisting and untwisting with considerable rapidity, jerking out of the field and bending upward as though alive. These movements continued for some moments after the drop of liquid had evaporated. The reason of these contortions can not so clearly be made out. It is probably due to the unequal endosmotic action of the cell walls, inasmuch as

the spirit can be seen, before the cell becomes filled, running backward and forward on account of capillary attraction and the decrease in diameter occasioned by the twisting.—C. R. BARNES, *Madison, Ind.*

TRIMORPHISM IN LITHOSPERMUM CANESCENS, Lehm.—Having occasion last year to collect and study specimens of this interesting species, I found, in the course of my examinations, a plant with flowers differing from the ordinary dimorphous condition. This discovery led to an extended search, the results of which may be interesting.

L. canescens is common in Michigan, as is also the closely related and more showy *L. hirtum*, growing in bunches and blossoming in spring as the former does. The masses of deep orange blossoms contrast finely with the bare, brown hillsides and the light green of the newly leaved over-arching trees. Every gardener knows what a pleasing effect is produced by the massing of color, and I thought, as I gazed on the flaming hill-slopes, that the plant was really handsome and worthy a place in our gardens. It would, however, scarcely be worth cultivating, if that were possible, since the grace of the surroundings would be wanting. This, of course, adds much to the charm of herborizing. If we could carry the freshness of the fields and the delight of discovery into our gardens along with the plants, we should, I dare say, transplant half the herbs we find in our rambles. But, to return to the facts, Prof. Gray says in the Manual that dimorphism sometimes occurs in this genus, and Sir John Lubbock has described a number of Borrageworts in which contrivances for cross-fertilization exist; but I have come across no special mention of *L. canescens*.

I observed three principal flower forms. One form, which I will call No. 1, has a short style, about one-third the length of the corolla tube, with stamens set high up on the tube in the throat. Sometimes the anthers of this form are somewhat exserted, but generally slightly included.

No 2 has styles varying from considerably included to strongly exserted with stamens near the base of the tube, much below the stigma. It seemed to me I could make out three forms of this No. 2, depending on the length of the style: (a) with style much exserted—there were but few of this kind; (b) with style up to but not projecting from the throat of the corolla—this was the common form; and (c) with style about two-thirds the length of the tube.

No. 3 has the short style of No. 1 with the short stamens of No. 2, thus bringing the stamens and pistils close to each other in the bottom of

the tube. There seemed, also, to be two forms of this: (a) with stamens on a level with the stigma; (b) with stamens half way up the tube. A few flowers were observed with *three* stamens borne as in (a) and the other *two* as in (b).

The comparative scarcity of this third form explains why it has been previously overlooked. only about one-fiftieth of the specimens examined belonging to it. Of the remainder, about three-fifths were No. 2, and the rest No. 1.

The corolla tube of No. 1 has a well defined bulge just under the limb, and below this it is quite attenuated; the tube in the other forms is larger, does not taper gradually to the ovary, and is slightly swelled towards the base. This difference in the tubes is plain, and by it the 1st may be readily distinguished from the 2d and 3d forms.

Fruit sets freely in all the forms, and the anthers of all were well supplied with pollen.—ERWIN F. SMITH, *Hubbardston, Mich.*

NEW SPECIES OF FUNGI, by Chas. H. Peck.—Specimens of the fungi here described have been received from the sources indicated under the respective descriptions.

PAXILLUS HIRSUTUS.—Pileus convex or nearly plane, hairy, tawny-brown; lamellæ rather broad, subdistant, decurrent, concolorous; stem cylindrical, lateral or eccentric, hairy, concolorous; spores broadly elliptical, .0002–.00025 of an inch long, .00016 of an inch broad.

Plant about two inches high, pileus two inches broad, stem half an inch thick.

Belleville, Ontario. *Prof. J. Macoun.*

The species is apparently related to *Paxillus atrotomentosus*, from which it is separated by its paler color and hairy pileus. From *P. pubescens* it may be distinguished by its glabrous lamellæ. The hairs of the pileus are more conspicuous on the disk, the margin appearing nearly smooth. As no notes were taken of the characters of the plant in the fresh state, the description has necessarily been derived from the dried plant. It is quite probable therefore that the colors of the fresh plant may not accurately agree with those given in the description.

POLYPORUS MACOUNI.—Effused, irregularly tuberculate, tawny-ferruginous; pores minute, subrotund, somewhat unequal, the dissepiments generally thick and obtuse; spores subglobose, .00025 of an inch in diameter.

Creeping over and incrusting mosses. Belleville, Ontario, *Macoun.*

The species belongs to the section *Resupinati*. The specimens indicate that the plant is composed of numerous small unequal and irregular confluent tubercular masses whose porous surface gives them a somewhat spongy appearance. The irregular and uneven surface of the whole mass is probably due mainly to the character of the place of growth.

BOVISTA SPINULOSA.—Globose, sessile, two to four inches in diameter, whitish, becoming tinged above with yellow and brown, the peridium thick, firm, subcorky, the upper part cracking in rather large areas; capillitium and spores dingy-olive inclining to brown; flocci pale, usually branched, bearing scattered unequal spine-like processes; spores globose, colored, minutely warted, .0004–.0005 of an inch in diameter.

On or near dung of domestic animals in open places. New Mexico. *C. W. Irish.*

This is a remarkable species unlike any other American *Bovista* known to me, both in its thick firm and gourd-like rind or peridium, and in its pale subpellucid filaments which are armed, especially toward their extremities, with prominent spinules. Its spores, too, are larger than those of our other species.

According to the notes kindly furnished me by Mr. Irish, the plants grow in groups of from five to fifteen individuals. They were seen here and there along a trail a distance of about forty miles. When fully developed they are easily loosened from their place of growth and are blown about by the winds. None were found growing in the shade and in some instances small and immature specimens appeared to have been killed by the heat of the sun.

SEPTORIA PODOPHYLLINA.—Spots large, indefinite, reddish-brown; perithecia epiphyllous, few, clustered on or near the center of the spot, pallid or blackish, slightly prominent, collapsing when dry; spores filiform, variable in length, straight or slightly curved, .0008–.0015 of an inch long.

Living leaves of mandrake, *Podophyllum peltatum*. Illinois. Communicated by *Prof. S. A. Forbes.*

SEPTORIA LACTUCÆ.—Spots indefinite, pallid or brownish; perithecia minute, scattered, blackish; spores straight or slightly curved, .0008–.0015 of an inch long.

Living leaves of lettuce, *Lactuca sativa*. Illinois. *Forbes.*

SEPTORIA TRILLII.—Spots suborbicular, whitish; perithecia numerous, crowded, especially on the center of the spot, black; spores filiform, straight or curved, .0008–.0016 of an inch long.

Living leaves of *Trillium*. Illinois. *Forbes*.

CELLULOSPORIUM *gen. nov.*

Perithecia sphæriform, fragile, rupturing irregularly or the whole upper part falling away; spores large, multicellular.

This is a Coniomycetous genus belonging to the Order SPHÆRONEMEI. It is apparently related to the genus Coniothyrium but that is characterized by its simple spores, so that our plant could not be referred to it without violating the generic character. I have therefore been obliged to institute a genus for its reception.

CELLULOSPORIUM SPHÆROSPORUM.—Perithecia superficial, subglobose, .01–.02 of an inch in diameter, fragile, black; spores subglobose or broadly elliptical, colored, cellular, .0008–.0012 of an inch long.

Decaying wood. Illinois. *Forbes*.

The fungus appears to the naked eye like some minute black *Sphæria* scattered over the surface of the wood.

PUCCINIA ATROPUNCTA *P. & C. n. sp.*—Spots very small, yellowish, generally with a brownish center; sori numerous, small, slightly prominent, black; spores oblong-clavate, obtuse, constricted at the septum, .0016–.002 of an inch long, .0008–.0009 of an inch broad, the pedicel generally shorter than the spore.

Living leaves of *Veratrum Woodii*. Allenton, Missouri. Communicated by *G. W. Clinton*. Jefferson County, Missouri. Communicated by *E. A. Rau*. Collected by *G. W. Letterman*.

This species is quite distinct from *Puccinia Veratri*, both in color of the sori and in the character of the spores.

RHYTISMA SPARSA *P. & C. n. sp.*—Stroma very small, thin, scattered, less than one line in diameter, suborbicular, slightly convex, black, rupturing by two or three short irregular chinks; asci obovate or elliptical, eight-spored; spores oblong, uniseptate, slightly colored, .0008–.001 of an inch long, slightly constricted at the septum, the cells generally a little unequal.

Both sides of living leaves of *Sabal Palmetto*. Florida. *Clinton*.

This *Rhytisma* is a very small one, appearing to the naked eye like mere dots on the leaf. There is a small pallid or yellowish spot on the leaf opposite each stroma.

SOME NOTES FROM NORTHERN DAKOTA AND MONTANA.—In a paper contributed to the *Medical Record* upon the "Climate and Diseases of Northern Dakota and Montana," Dr. P. F. Harvey makes the following mention of the botany of that region. His observations have

extended from the Red River of the North to Milk River and Fort Custer in Montana:

"The flora of the country embraces a very respectable number of plants, many of great botanical interest, and some of considerable economic importance. Upward of seventy species were observed and analyzed by the writer during the summer of 1878, a few of which it was impossible to properly assign after a careful and searching analysis, and it is believed that the creation of new genera (?) will be necessary for them. Omitting the rarer and minor forms of plant-life as unessential to the present inquiry, it is regarded as sufficient to allude briefly to the prevalent and characteristic growth of the country. The forests fringing the water courses are constituted mainly of *Populus monilifera*, Ait., sparingly intermixed with which is found the *Fraxinus viridis*, Mx. A variety of *Salix*, with *Cornus stolonifera*, Mx., is found growing rather abundantly along the annually submerged river banks. The bark of the latter is dried and smoked by the Indians as a substitute for tobacco. The *Prunus Virginiana*, L. and the *P. Americana*, Marshall, are encountered chiefly along the banks of ravines. The *Shepherdia argentea*, Nutt., is quite common and bears an abundant crop of edible scarlet berries, intensely acid, but rich in pectin, and capable of conversion into an excellent article of jelly. *Vitis cordifolia*, Mx., frost grape, and *Ampelopsis quinquefolia*, are found chiefly among the forest of cottonwood. *Opuntia Missouriensis*, DC., is abundant, but dwarfed on the uplands.

Rosa blanda, Ait., forms dense thickets along the banks of many streams, attaining a height of ten or twelve feet in some instances. The plants, popularly designated as weeds, that are worthy of notice, either on account of their abundance or showy petals, are *Grindelia squarrosa*, Dunal, three varieties of *Ambrosia*, *Helianthus annuus* (?), *Polygonum aviculare*, various species of *Œnothera*, *Anemone Virginiana*, various species of *Aster* and many others. A species of the *Compositæ* grows very abundantly throughout this entire section, and is erroneously called wild sage. Botanically it is the western mugwort, *Artemisia Ludoviciana*, Nutt., var. *latifolia*. It and *A. frigida* are much valued by the Indians, I am informed, in the treatment of fevers, gonorrhea, etc. They use it in the form of decoctions. The buffalo grass (*Buchloe dactyloides*) is abundant throughout the region. Valuable as a nutritious fodder, it is of some interest scientifically as one of the rare examples of a diœcious grass, its male and female flowers differing so widely in appearance that botanists for a long time regarded them as representatives of different genera."

RAPHIDES IN TRILLIUM ERECTUM, VAR. ALBUM.—While making a microscopical examination of the parts of this *Trillium*, my attention was at once attracted by the large and well defined bundles of raphides to be found in the petals. Putting a portion of a petal between two glass sides and pressing them together until the specimen had been rendered nearly transparent, a power of 450 diameters revealed a beautiful display of these bundles. Sometimes three bundles were in the field at once and from no field were they absent. They were much larger than the cells of parenchyma among which they were lying, and in fact they did not seem to pay any attention to cell divisions but lay across them, covering sometimes as many as 4 cells. The bundles lay parallel with each other, pointing towards the base and apex of the petal in the line of most rapid growth. Some of them were very compact, the needles seeming to be firmly united together, while others were beginning to break up and discharge their crystals, caused no doubt by the pressure and consequent flow of sap. The needles were projected from the bundles at all angles, in some cases pushing each other along and thus gaining quite a distance from their starting point.

Having examined raphides in many plants I have found none so plain, none so easily obtained as these from the petals of *Trillium erectum*, var. *album*.—J. M. C.

ÆSTIVATION OF MAHERNIA VERTICILLATA, L.—One of my pupils, Miss Anna Chace, of Valley Falls, R. I., called my attention to the peculiar æstivation of *Mahernia verticillata*, L., a familiar hot-house shrub of the Natural Order *Sterculiaceæ*. She noticed that of the convolution of the two flowers on a branch, the twisting of one was to the right, the other to the left. My own subsequent observations confirm hers. I have to add the following notes:

It will be remembered that the inflorescence is of the definite kind, one flower terminating the stem but pendant; the other axillary to a small foliaceous bract and raised on a longer peduncle than the really older flower. In point of fact, the two flowers have nearly coincident anthesis. In all cases that I have examined the æstivation differs in the two blossoms as Miss Chace observed, but sometimes it is the terminal, sometimes the axillary one that is dextrorse, the other always reversing the direction. Again I find that of a number of flowering branches examined, about an equal proportion fall under one or other of the above heads, *i. e.* sinistro-dextrorse or dextro sinistrorse. I coin terms to express my meaning. In all cases there is a distinct

difference in the direction of convolution of any two blossoms of the same branch.—W. W. BAILEY.

P. S. I find, upon consulting LeMaout and DeCaisne under *Sterculiaceæ* two diagrams of *Hermannia* are given, the one "twisted to the right," the other to the left. It is not spoken of in the text.—W. W. B.

RECENT PUBLICATIONS.—*American Journal of Science and Arts*, May. —Dr. Leo Errera, in Belgium, has been investigating some Pentstemons and has come to the conclusion that the principal function of the sterile filament is to obstruct the access of unwelcome insects to the nectar at the base of the flower.

American Naturalist, May.—In regard to the self-fertilization of plants the conclusions of the Rev. Geo. Henslow are given as follows: "1. The majority of flowering plants can, and possibly do, fertilize themselves. 2. Very few plants are known to be physiologically self-sterile when the pollen of a flower is placed on the stigma of the same flower. 3. Several plants are known to be morphologically self-sterile in that the pollen cannot, without aid, reach the stigma, but is effective on that of the same flower. 4. Self-sterile plants from both the above causes can become self-fertile. 5. Highly self-fertile forms may arise under cultivation. 6. Special adaptations occur for self-fertilization."

Ferns of North America. Parts 14 and 15.—This number contains *Aspidium Goldianum*, Hooker, *A. Filix-mas*, Swartz, *Polypodium pectinatum*, L., *P. Phyllitidis*, L., *Pellæa Bridgesii*, Hooker, *P. Breweri*, Eaton, *Notholæna tenera*, Gillies, *Dicksonia pilosiuscula*, Willd., (*D. punctilobula*, Kunze.), *Cheilanthes tomentosa*, Link, and *C. Eatoni*, Baker.

Journal of Botany, British and Foreign.—On the Sources of the China Matting of Commerce. In addition to the matting used for sails, Canton and the large district city of Tung-kun are the seats of an extensive manufacture of floor-matting, almost all of which is exported to the United States. The plant from which it is woven is *Cyperus tegetiformis*, Roxb.

The third part of Prof. Beccari's *Malesia* describes five new species of *Osmoxylon* and nine of *Rhododendron*. Three species of *Nepenthes* are found in New Guinea. But the most interesting plant figured and described is *Corsia*, from the north coast of New Guinea; it is a small aphyllous parasite, with a scaly stem bearing a single terminal flower. It may form the type of a new Natural Order *Corsiaceæ*. Parts 80 and 81 of the *Flora Brasiliensis* were issued in December, 1878. In the proceedings of the Linnean Society of London, there

was exhibited a drawing, natural size, of one of the remarkable crimson-colored pitchers of *Nepenthes sanguinea* from Malacca; this cylindrical pitcher measured twelve inches long and nine inches in circumference. In a paper on Inflorescence, Dr. Maxwell Masters, discusses schemes of classification and proposes a rearrangement under the heads of *monopodial* or indefinite, *choripodial* or dichotomous and *pleiopodial* or definite.

United States Species of Lycoperdon, by Chas. H. Peck. A. M.—The nature and object of this paper cannot be given better than in the prefatory note of its author. "The literature of the puff-balls of the United States is very much scattered and in some instances scarcely accessible, the descriptions are often imperfect and unsatisfactory and the technical terms employed in describing the species are scarcely intelligible, without explanation, to any except mycologists. It has therefore seemed desirable to bring together the descriptions of all our species, so far as known, and, for the purpose of rendering them more satisfactory and intelligible to the general reader, to remodel them, giving them more uniformity of style and more completeness of detail and employing the strictly technical terms only after having given an explanation of their meaning. Besides this the specific descriptions have been supplemented by remarks upon the general and more obvious characters, and the distinguishing features of such species as are closely allied and liable to be confused have been specially mentioned. It is believed that the species thus described can be identified without the aid of a microscopic examination of the spores, but for the sake of completeness the spore characters have been given in all cases in which they were ascertainable." It seems that we have nineteen species of *Lycoperdon*, and with this paper as a guide it also seems that any one ought to be able to distinguish them.

Gramineæ, by Geo. Vasey, M. D.—Although there is no statement of the fact we judge that this handsomely printed pamphlet is an extract from the final report on the Botany of the Wheeler Survey. Dr. Vasey has long had a fondness for the grasses and has here made a careful and full report. Descriptions are given of all grasses not described in easily attainable reports, and references indicate plates, though none appear in this extract. Of the 122 species catalogued four are described as new, *Vilfa minima*, *Poa Wheeleri*, *Festuca Thurberi* and *Trisetum Wolfii*, the last being dedicated to the indefatiguable collector of the expedition.

Descriptions of some new species of North American Mosses, by Leo

Lesquereux and Thos. P. James, with a supplement by W. P. Schimper.—In the prefatory note it is said that the new species of mosses described have been received from various sources since the death of Mr. Sullivant and the publication of the Supplement to the Icones Muscorum. On a recent visit by Mr. James to Europe, he took with him not only specimens of these species, but also of many of those recently described as new in the scientific periodicals of this country, for the purpose of critically re-examining the whole in co-operation with Prof. W. P. Schimper, of Strasburg. Seventeen species are described, ten of which come from the south, seven being from Florida.

Characeæ Americanæ, by Timothy F. Allen, A. M., M. D., Part I.—This consists of a handsome colored plate of *Chara gymnopus*, A. Br., var. *elegans*, A. Br., with a page of letter press. It is well executed and we hope that other parts will speedily follow.

Catalogue of the Flowering Plants, Ferns and Fungi growing in the vicinity of Cincinnati, by J. F. James.—This catalogue is from the Journal of the Cincinnati Society of Natural History, April, 1879. The list of Fungi has been taken from Mr. Lea's catalogue, published in 1849, and now out of print. Part of the nomenclature has been brought up to date, Watson's Bibliographical Index being followed as far as published. Through Filices, 898 species are listed. To this is added Lea's catalogue of 319 Fungi, making quite a respectable showing for Cincinnati botanists. Future investigations may yield many more species and some may need to be verified, as for instance *Cyperus Lancastriensis*, Porter. *Carex Muskingumensis*, Schw. should have been written *C. arida*, Schw. & Torr. and some other names after *Compositæ* might have been changed, but the catalogue is a good one and is a step in the right direction.

Bulletin of the Torrey Botanical Club, April.—C. F. Austin in his notes on Hepaticology describes nine new species of Liverworts. Under the title of "New or little-known Ferns of the United States," Prof. D. C. Eaton gives *Adiantum tenerum*, Swartz, *Pteris Cretica*, L., *P. serrulata*, L. fil., *Asplenium ebeneum*, var. *proliferum*, and *Ophioglossum vulgatum*, Plumier.

C. F. Wheeler reports growing near Hubbardston, Michigan, *Draba Caroliniana*, Walt., and *Utricularia resupinata*, Green, neither of which have been before noticed in that state.